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BOOKS.

The Algebra of Invariants. By J. H. Grace, M. A., Fellow of Peterhouse and A. Young, M. A., Lecturer in Mathematics at Selwyn College, Late Scholar of Clara College. 8vo Cloth, vi+384 pages. Price, \$3.00. Cambridge: The University Press. New York: The Macmillan Co.

The object of this work, as stated in the preface, is to provide an English introduction to the symbolical method in the theory of Invariants. The book contains sixteen chapters in which, after the first—the Introduction—the following subjects, in order, are treated: The Fundamental Theorem; Transvectants; Elementary Complete Systems; Gordan's Theorem; The Quintic; Simultaneous Systems; Hilbert's Theorem; Geometry; Apolarity and Rational Curves; Ternary Forms; Types of Covariants; and General Theorems on Covariants. The book concludes with an appendix in which is justified the results obtained by manipulating umbral expressions and in which is indicated how the whole theory can be made to rest on differential operators. Wronski's Theorem and Jordan's Lemma are also proved in the Appendix.

The first five chapters of the book lead gradually up to Gordan's proof of the finiteness of the system for a single binary form, while the sixth chapter is devoted to an exposition of Gordan's third proof.

While the authors have done valuable service to the cause of mathematics in making known to the English reader the methods of investigation in this branch of mathematics, of Gordan, Clebsch, and others of the German masters, yet it seems to me that the book could have been made more serviceable and better adapted to the use of a larger class of students, (i) by having presented the unsymbolic and symbolic methods together in the introduction, at least; (ii) by having used more illustrative examples in the development of the subject; and (iii) by having inserted a larger number of well chosen examples at the end of each chapter. F.

Elementary Geometry. Plane. By James McMahon, Assistant Professor of Mathematics in Cornell University. 8vo. Cloth, x+358 pages. New York and Chicago: The American Book Co.

This constitutes the sixth of the Modern Mathematical Series in preparation by the mathematical faculty of Cornell University and edited by Professor Wait. The book possesses many commendable features, notably the introduction of elementary ideas in Logic comparatively early, the arrangement of theorems and problems in natural groups and subgroups with reference to their underlying principles, and the purely geometrical treatment of ordinary size-relations. F.

School Algebra. By J. M. Colaw, A. M., Monterey, Va., and J. K. Ellwood, A. M., Principal of Colfax School, Pittsburg, Pa. 8vo. Cloth, 456 pages. Price, \$1.15. Richmond, Va.: B. F. Johnson Publishing Co.

This book is well adapted to the needs of high schools and academies, and covers the field with sufficient thoroughness to meet the entrance requirements of any college or university. F.

Lessons in Physics. By Lothrop D. Higgins, Ph. B., Instructor in Natural Science in the Morgan School, Clinton, Conn. 12mo. Cloth, vii + 379 pages. List Price, 90 cents. New York and Chicago: American Book Co.

This work presents a comprehensive and accurate view of Physics and is well suited to those schools having little or no laboratory facilities. F.

Elements of the Theory of Integers. By Joseph Bowden, Ph. D., Professor of Mathematics in Adelphi College, Brooklyn, N. Y. x+258 pages, 8vo. Cloth. Price, \$1.25. New York: The Macmillan Co.

This volume, we are told in the preface, contains the first two parts of a work which the author hopes to complete, on the Elements of the Theory of Numbers, the remaining three parts to be devoted to Rational Numbers, Real Numbers, and Complex Numbers, respectively. The merits of this book are greatly obscured by the introduction and use of a cumbersome notation. The author also uses the "reform spelling." F.

Advanced Course in Algebra. By Webster Wells, S. B., Professor of Mathematics in the Massachusetts Institute of Technology. 8vo. Half Leather Back, viii+581 pages. Boston: D. C. Heath & Co.

This book develops the subject along the line followed in the author's College Algebra, though numerous improvements have been introduced. In the development of the fundamental laws of Algebra for positive and negative integers, the positive and negative fraction and zero, the most approved method of presentation has been used, and in general treatment the work will satisfy the thorough and critical teacher. F.

Laboratory Physics. A Student's Manual of a Series of Quantitative Experiments. By Dayton Clarence Miller, Professor of Physics in the Case School of Applied Science. Quarto, Cloth, vx+404 pages. Price, \$2.00. New York, Boston, and Chicago: Ginn & Co.

This manual contains a very full course in laboratory work in Physics designed for undergraduates in colleges and technical schools. The explanations are full and clear and outline in a systematic manner those details of manipulation which benefit the student and are great aids to teachers. The number and variety of the problems are unusually large and well selected. F.

An Elementary American History. By D. C. Montgomery. 12mo Cloth, xiii+306 pages. List Price, 75 cents. Ginn & Co., Publishers.

A text book to meet the demand for a brief, continuous, narrative history of our country suited to the wants of elementary pupils. As in the author's *Beginner's American History*, every prominent topic is carefully and fully illustrated with pictures or maps, and the book appeals to the eye as well as the understanding. W. R.

Primary Arithmetic. By David Eugene Smith. 12mo Cloth, 264 pages. List Price, 30 cents. Ginn & Co., Publishers.

An excellent book in its arrangement and selection of problems. The illustrations and pictures will aid materially in making the work attractive and interesting. W. R.

Plane Trigonometry. By James M. Taylor, A. M., LL. D., Professor of Mathematics, Colgate University. 12mo. Cloth, viii+171 pages. List Price, 75 cents. Boston: Ginn & Co.

The treatment of the subject of Plane Trigonometry as here presented is clear, practical, and scientific. In addition to the usual matter contained in such a work, we have in this one a brief discussion of Hyperbolic Functions, Complex Numbers, and De Moivre's Theorem. F.

Technical Mechanics. By Edward R. Maurer, Professor of Mechanics in the University of Wisconsin. 8vo. Cloth, xvi+382 pages. New York: John Wiley & Sons.

This work is called a Technical Mechanics in accordance with the usage of some German writers. The theory in each chapter is grouped together and separated from the application. In Statics coextensive use is made of the graphical and algebraic methods. The book is well written, the treatment being lucid and the arrangement of material logical. It will be found to be of great service to the student of Engineering. F.

The Jones Series of Readers. Embracing the First, Second, Third, Fourth, and Fifth Readers. By L. H. Jones, A. M., President of the Michigan State Normal College, Superintendent of Schools of Indianapolis, Ind., and Cleveland, O. Boston: Ginn & Co.

In the first part of the First Reader are a number of attractive pictures in colors, a new feature in such books. The other books of the series are beautifully illustrated, and the printing and binding are excellent. The Fifth Reader contains some of the finest selections in the English Language. F.

A Student's Manual of a Laboratory Course in Physical Measurements. By Wallace Clement Sabine, A. M., Instructor in Harvard University. 8vo. Cloth, ix+126 pages. Boston: Ginn & Co.

This book contains the experiments performed in the course in Physics given in the Summer School of Harvard University. The course presupposes a knowledge of algebra, plane geometry, and the notation of trigonometry, and should be preceded by a more elementary course in physics. F.

One Thousand Problems in Physics. By William H. Snyder, A. M., Master in Science, Worcester Academy, Worcester, Mass., and Irving O. Palmer, A. M., Master in Newton High School, Newton, Mass. 8vo. Cloth, v+142 pages. Boston: Ginn & Co.

This book contains a fine collection of elementary problems in physics. F.

Elementary Physical Geography. By William Morris Davis, Sturgis-Hooper Professor of Geology in Harvard University. 8vo. Cloth, xvii+401 pages+9 plates. Price, \$1.25. Boston: Ginn & Co.

In this book the High School requirements are admirably satisfied. It certainly ranks as one of the best books that has yet appeared on the subject. F.

ERRATA.

Page 56, l. 6, for $(2c)!$ read $[(2c)!]^2$; l. 7, for 1 read $\sqrt{-1}$.

Page 58, l. 5, read $\int_0^\infty e^{-[x^2+(a^2/x^2)]\cos\theta} \cos\{[x^2+(a^2/x^2)]\sin\theta\} dx$.

Page 59, l. 4, for $-q$ read $+q$.

Page 59, l. 3 from bottom, for $=0$ read $=1$.

Page 60, l. 6 from bottom, for $\sqrt{-2}$ read $\sqrt{-1}$.

Page 61, l. 3, read $\int_0^\infty \left(\frac{e^{-ax} - e^{-bx}}{x} \right)^2 \cos^2 rx dx$.

Page 62, l. 6 from bottom, for a_2 read a_1 in denominator.

Page 70, l. 16 from bottom, for T_1, T_2, T_2 read T_1, T_2, T_3 ; l. 8 from bottom, for $P=T_2$ read $P=T_1$.

Page 71, l. 12, for 2^2 read $2^2 m$; l. 14, for $(P+P)$ read $(P+Q)$; l. 18, for 2^{2n} read 2^n .